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Moodle 2 for Teaching 4-9 Year Olds

Book

How to cite:

Freear, Nicholas (2011). Moodle 2 for Teaching 4-9 Year Olds. Beginner's Guide. Birmingham, UK: Packt Publishing.

For guidance on citations see [FAQs](#).

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Version: Not Set

Link(s) to article on publisher's website:

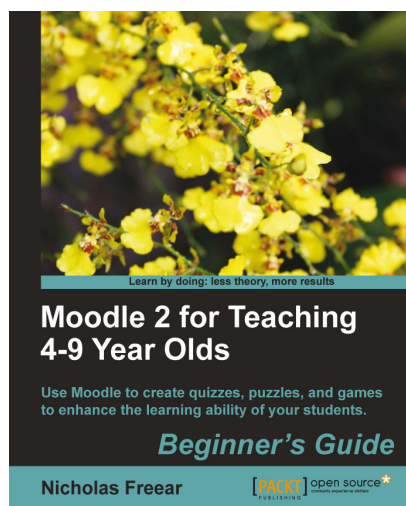
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Moodle 2 for Teaching 4-9 Year Olds *Beginner's Guide*

Nicholas Freear



Chapter No.4 "Spot the Difference"

In this package, you will find:

A Biography of the author of the book

A preview chapter from the book, Chapter NO.4 "Spot the Difference"

A synopsis of the book's content

Information on where to buy this book

About the Author

Nicholas Freear got into software and educational technology through a series of happy accidents. During research for a PhD in Mechanical Engineering at the University of Birmingham he was thrown in at the deep end, learning to program in C++, using the Windows API, and programming against the interface card for an early digital camera (a "frame grabber", since you ask).

Bizarrely, this didn't put him off. In his next job, he was a programmer at a high-tech startup company helping to create products from voice recognition and speech synthesis software.

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However, the World Wide Web was calling. After a character-building stint as a self-employed developer and accessibility consultant, Nicholas joined the team that was working on The Open University's next-generation e-learning environment. And so, he was introduced to Moodle and the open-source software community. Following several fruitful years, Nick joined the Institute of Educational Technology at The OU, where he got to talk to more academics, pursue his accessibility and usability interests, and work on many different education and research projects.

He blogs (<http://freear.org.uk>), contributes to the Moodle community (<http://moodle.org/user/view.php?id=93815>), and likes to talk at workshops and conferences despite his stammer.

When he's not trying to understand the mysteries of the Web, Nick likes to sing, cycle, listen to loud music, and learn about all things Chinese. Occasionally all at the same time.

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Moodle 2 for Teaching 4-9 Year Olds

Beginner's Guide

Moodle is a virtual learning environment that is being used in more and more schools worldwide. It is ideal for teaching a younger age group as interactive lessons enable children to learn quicker and with greater ease.

Moodle 2 for Teaching 4-9 Year Olds Beginner's Guide will help you to adapt your existing lesson plans to online Moodle courses and will give you ideas to create new activities, quizzes, and puzzles to make the learning process fun and interactive for young children.

The interactivity of Moodle means that it is perfect for teaching younger children as they can learn by watching, listening, and doing. Learn how to create activities and quizzes that are specially adapted for younger children and are quick and easy for you to incorporate in Moodle. Other highlights include spot-the-difference exercises, games, and embedded puzzles.

Teaching young children has just got easier with the help of Moodle to create fun, interactive, and informative learning activities.

[The website for the book can be found at:
<http://freear.org.uk/moodle>
The site contains links to downloads and a forum for discussions with other
readers, demonstrations, updates and errata.]

Note that links to individual downloads are listed in the book at the point at which they are needed. There is no single code archive.

For More Information:
www.packtpub.com/moodle-2-for-teaching-4-9-year-olds-beginners-guide/book

What This Book Covers

Chapter 1, Getting Started; after a brief introduction we step through logging into Moodle. Then we create a course and an alphabet quiz activity based around multiple-choice questions. We add in the third-party SimpleSpeak plugin, and use it to voice sounds and words for the quiz.

Chapter 2, Basic Math in Moodle talks about how the e-learning environment is a great home for basic and more advanced numeracy exercises to cater for a mixed ability class. We set up a math quiz using built-in question types and the contributed Calculated Objects plugin. We use Creative Commons search and learn to embed video.

Chapter 3, Telling Stories lets us harness the creativity and storytelling abilities of children. We create an activity with the Database module to allow the class to collect pictures. Then we set an activity where the students write a story online, inspired by their own or a classmate's picture. We also explore how to record an audio book.

Chapter 4, Spot the Difference, here we will learn how visual activities are a fun way to stimulate your class. We will also learn how to use an open-source, desktop image editor to modify images to form the basis of our exercise. Then we employ the built-in Lesson activity to present simple and trickier spot the difference puzzles.

Chapter 5, Setting Homework, here we create a visual, interactive history timeline using MIT SIMILE and linked to a Moodle Forum. And we learn about using the Assignment module for homework activities.

Chapter 6, Fun Games, here we will use the third-party Game module by Vasilis Daloukas to set up snakes and ladders, and hidden picture puzzles. We integrate the built-in Glossary plugin.

Chapter 7, Interactive Puzzles, here we integrate various open source Flash games and puzzles from Subtangent including word-search and a jigsaw.

Chapter 8, Stories Revisited, in this chapter we source an ex-copyright children's book from Project Gutenberg, and employ Petr Škoda's Book module to integrate it in Moodle. And we incorporate an external dictionary service.

Chapter 9, Embedding the Web; we incorporate various resources into our course, including activities programmed using MIT Scratch, RSS feeds, PhET science simulations, and an HTML5 jigsaw.

Chapter 10, Administration, here we will look at course and activity backup and restore in Moodle—for your peace of mind. We explore the Gradebook, student notes, and the Moodle community.

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4

Spot the Difference

In this chapter, we are going to use the Moodle lesson activity module to create spot-the-difference visual exercises. Younger children find spot-the-difference activities fun, and they are a great way to develop the visual, observational, and descriptive skills. We will also explore student enrolment.

In this chapter we will:

- ◆ Introduce the lesson module and its potential
- ◆ Design and create a lesson activity
- ◆ Find suitable images to use as the basis for our spot-the-difference activity
- ◆ Install the Inkscape desktop image editor on Windows
- ◆ Edit our images
- ◆ Add question pages to our lesson, and images to the question pages
- ◆ Add branch tables to our lesson
- ◆ Enroll students on our course, using different methods

So let's dive in...

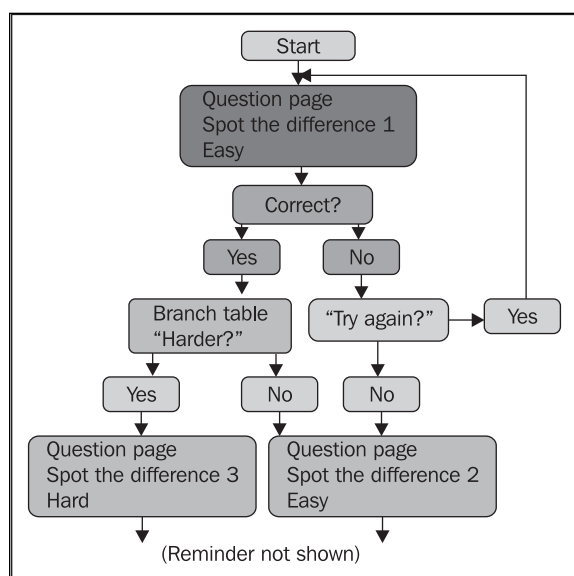
For More Information:

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Introducing the lesson module

The *lesson* activity module shares some similarities with the *quiz* module, in that it gives the teacher the ability to set questions for the pupil to answer. However, there are some differences, notably:

- ◆ While the quiz module is often used for assessment, the lesson module as the name implies is primarily for learning. That being said, the teacher can decide whether or not to add the score from either to the *gradebook*.
- ◆ There is a wider choice of question types for the quiz and third-party question types can be added. In Moodle 1.9 and 2, a subset of the core question types is available in the lesson activity. This still affords us plenty of choices.
- ◆ The quiz module restricts the student to a linear path through a set of questions, with the outcome of one question not influencing the next. On the other hand, the lesson module allows the teacher to design in looping and branching, where the choices the pupil makes can result in different paths.



The previous diagram illustrates the flow through the first part of an example lesson activity. We will use this as the design for our spot-the-difference activity.

The flow is from top to bottom, and the four green boxes represent pages added to the activity by the teacher. There are three question pages, starting with an easy spot-the-difference question, and optionally moving to a harder question. If the pupil answers the first question correctly, as determined automatically by the system (the pink boxes), they see a branch table. This allows the pupil to choose an easier or harder question based on how well they think they coped. Alternatively, if the pupil answers the first question incorrectly then the system allows them to loop and repeat the question.

For simplicity, we are not going to consider the remaining action or page types available in the lesson module, but in brief they are as follows:

- ◆ **Cluster** – this is used to group a number of questions
- ◆ **End of cluster** – this is a hidden page that acts as a redirect to another part of the lesson
- ◆ **End of branch** – this is an optional hidden page at the end of a branch, to provide a jump to another part of the lesson

Creating our first lesson activity

Start by creating a new course in the usual way, with a short name of **MY104**. We will launch in and add a lesson activity.

Time for action – adding a lesson activity

To add a lesson activity, follow these steps:

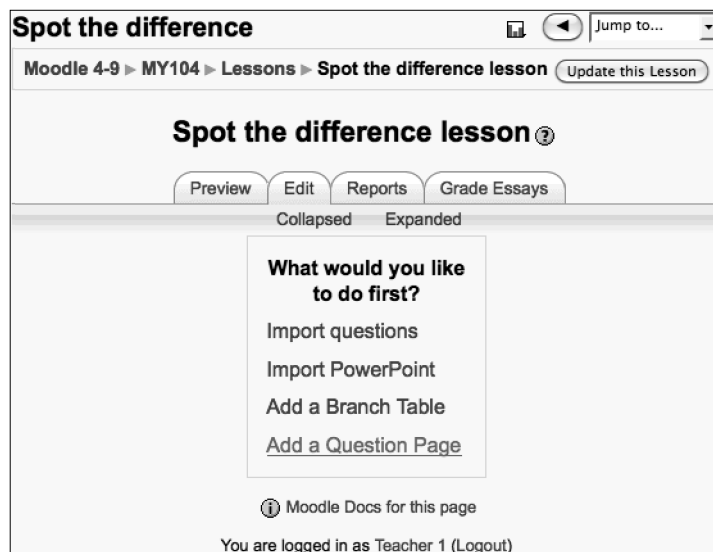
1. Select **Lesson** from the **Add an activity** drop-down menu in your course.
2. The system will present a form like that shown below. Enter a lesson **Name**, for example, **Spot the difference lesson**.
3. Also in the **General** section, increase the **Maximum number of answers/branches** from 4 to 5.
4. Then under **Grade options**, set **Practice lesson** to yes – this means that the activity will not show up in the gradebook. Leave the defaults for the other items in **Grade options**.
5. In the **Flow control** section choose **Yes** from the drop-down menu for **Allow student review**. In Moodle 1.9 choose **Yes** for **Display review button**.
6. Increase the **Maximum number of attempts** from 1 to 2. You should then leave the defaults for the rest of the form fields. As ever, you will be able to return and adjust these values later should you wish.

7. Scroll to the bottom and press the **Save and display** button.

The next page is the lesson dashboard, which comprises four tabs. The **Edit** tab will be initially selected. Under the question **What would you like to do first**, there are five options:

- ◆ **Import questions**
- ◆ **Import PowerPoint**
- ◆ **Add a content page** (labeled, more accurately, **Add a Branch Table** in Moodle 1.9)
- ◆ **Add a cluster**
- ◆ **Add a Question Page**

According to the flow chart we looked at previously, we want to start by adding a question, so click on the final link.



Then follow these steps to add a question page:

1. In Moodle 2, you will be presented with an intermediate page containing a drop-down menu labeled **Select a question type**. Choose **Multichoice** and press the **Add a question page** button. In Moodle 1.9, you are presented with the main **Add a question page** form, with a row of tabs for the available question types at the top. You should choose the **Multichoice** tab then proceed as for Moodle 2.
2. For our first question enter a **Page title** such as **Spot the difference 1**. Tick the **Multiple-answer** checkbox (in Moodle 1.9, this is at the top of the form, and in Moodle 2 under **Page contents**).
3. Next to **Page contents**, type **Take a good look at the two pictures below**. After a newline, type **How many differences can you spot? Tick the boxes that apply**. Select this line with your mouse and make it a **Heading 3**, as shown in the next screenshot.
4. In Moodle 2, you must set at least two answers, so enter placeholders for **Answer 1** and **Answer 2**. I typed **[An answer.]** and **[Another answer.]**, respectively.

5. Scroll to the bottom of the form and press the **Add a question page** button.

The screenshot shows the Moodle question editor for a 'Multianswer' question. At the top, there are tabs for 'Multiple Choice', 'True/False', 'Short Answer', 'Numerical', 'Matching', and 'Essay'. The 'Multianswer' tab is selected. Below the tabs, there is a 'Page title' field with the text 'Spot the difference 1'. The 'Page contents' section has a rich text editor with a toolbar showing various formatting options. The text in the editor is 'Take a good look at the two p' followed by 'How many differences c'. A dropdown menu is open, showing options: 'Heading 1', 'Heading 2', 'Heading 3' (which is highlighted), 'Heading 4', 'Heading 5', 'Heading 6', 'Normal', 'Address', and 'Preformatted'. Below the editor, there is a 'Path' field showing 'body > h3'. The 'Answer 1' field is empty. The 'Response 1' field is also empty.

What just happened?

There are six types of question available in the lesson activity, and only a few of these are interesting for our spot-the-difference activity.

Using the **Multiple choice** type we can ask questions such as, how many differences can you see between the images? The answers would comprise a range of different numbers, which may be easy to guess and are not very interesting. We can also use the question type with the **Multianswer** checkbox ticked, and a phrase such as, **Tick the boxes for the differences that you can spot**. If you scroll down you will see that we can have up to five correct and incorrect answers to a multiple choice question, so this is only useful if there are three or at most four differences between the images. We can also use the **Short answer** question type. As we shall see with careful design it is possible to automatically check answers for this question type.

The multiple choice question type guides the pupil through the exercise so it is suited to the first question, while the short answer question requires more thought from the pupil so it is better for later questions.

We created a course and added a lesson activity to it, to form the basis of our spot-the-difference exercise. We configured some parameters related to the lesson flow. And after some discussion about how to apply different question types to our exercise, we added our first question page. In the next section, we will find and edit some images for the exercise.

Finding spot-the-difference images

In order to create the spot-the-difference exercises we are going to need pairs of similar pictures. So the first question is whether we can find suitable images on the Internet. And, the next question would be, how do we edit them?

The **Open Clip Art Library (OCAL)** is a community project started by Jon Phillips and Bryce Harrington in 2004 to publish clip art. Clip art is normally used as components in other works. It can range from obviously synthesized or cartoon-like images to photorealistic images.

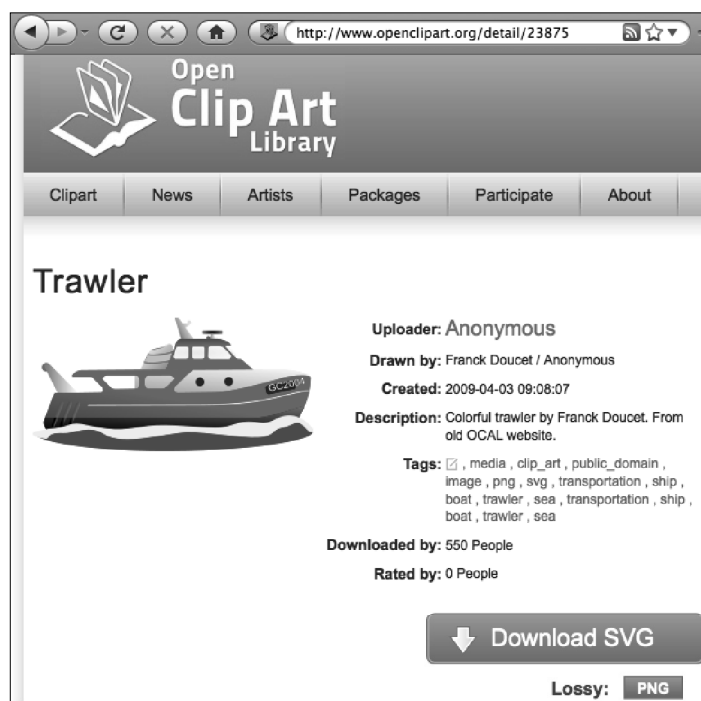
Time for action – finding images online on OCAL

Visit the home of the Open Clip Art Library at <http://www.openclipart.org/>. We would like three or four images for this exercise, and we should be able to find them using a combination of search and browsing. Some keywords you can try are **man** (or **person**, **people**), **house**, **animal**, and **boat** (or ship).

I found the following four images, but of course you can choose whatever you think is most suitable:

- ◆ Dawg (by feraliminal)
- ◆ Man in suit (by Gerald G/ worldlabel.com)
- ◆ Nicu's house (crash cghost) (by Nicu and rejon)
- ◆ Trawler (by Franck Doucet)

In the following screenshot you can see the details page for the trawler. In each case, download the SVG image and save to your hard drive. (Note, we don't want the PNG image at this stage!) I chose names like `openclipart-AUTHOR-FILE.svg` (for example, `openclipart-Gerald_G_Man_in_Suit.svg`).



There are some things worth noting about the Open Clip Art Library:

- ◆ There are a wide range of categories and a lot of interesting images in the OCAL collection.
- ◆ All Open Clip Art Library contributions are in the **Public Domain** (scroll to the bottom-left of a page on the OCAL site to view a link for the Creative Commons License). This means that the author has dedicated the work to the public domain, and does not claim any copyright on it.
- ◆ The primary format for OCAL images is **Scalable Vector Graphic (SVG)**, which is an open-standard based on XML. The individual components or layers are fairly easy to edit in the SVG image format, so as we will see it is well suited to our needs.



The **World Wide Web Consortium (W3C)** wrote the Scalable Vector Graphic standard (SVG 1.1). Vector graphics differ from raster or bitmap formats such as JPEG, GIF, and PNG in that the image file contains descriptions for components such as circles and polygons, by specifying their position, dimensions, colors, and so on. One benefit of vector graphic formats such as SVG is that they can be resized without the pixels becoming visible.

The W3C is a standards body for the Internet. It is led by Tim Berners-Lee, who wrote the first Web server and browser. It has developed many of the standards we are using in this book, including HTML, CSS, and XML (Hyper-Text Markup Language, Cascading Style Sheets, and Extensible Markup Language respectively). You can read more about the W3C's important work at <http://w3.org/>.

Scalable Vector Graphic images can be displayed natively in a range of browsers, including Mozilla Firefox, Opera, Google Chrome, and Safari (and Microsoft Internet Explorer 9, in Beta at the time of writing). And, they can be converted to the ubiquitous PNG image format.

What just happened?

We found a number of images in the Open Clip Art Library for use in our spot-the-difference exercise. And we introduced the SVG image format. We will find SVG images fairly easy to edit and well suited to this exercise.

Installing an image editor

As SVG is based on XML, simple images can be edited in a text editor. However, to edit images such as the fishing boat shown previously we will want some dedicated software. Inkscape is an open source desktop SVG editor for Windows (Windows XP/Vista/7), Mac OS X, Linux, and Unix-like systems (FreeBSD).

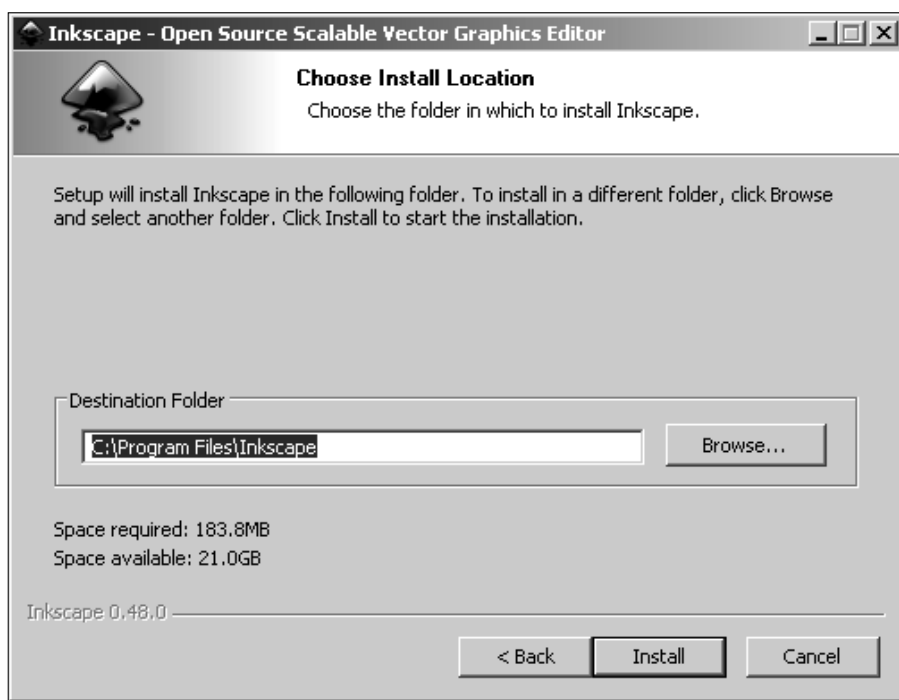


If you are already fairly comfortable with other image editing software you may be able to achieve similar results using them. However, it is not difficult to get started with Inkscape, so it's worth giving it a try. You have the choice!

Time for action – installing Inkscape

We are going to walk through downloading and installing Inkscape on Windows. The instructions are similar for Mac OS X—look for the Universal Binary (DMG) installer file.

1. Search for Inkscape, for example using Google. You will probably be directed to `Sourceforge.net` to download the installer.
2. When prompted by your browser, save the installer file to your hard drive. Its name will follow the pattern `Inkscape-MAJOR.VERSION-MINOR.exe` (`Inkscape-0.48.0-1.exe` at the time of writing).
3. Double-click on the installer to run it. In the first dialogue window you will be asked to select the setup language from the drop-down menu. Press **OK**, then take a quick look at the GNU General Public License and press **Next**.
4. You will probably want to keep the default settings when you are prompted to choose the components and destination folder, as shown in the following screenshot. Press **Next** then **Install** to set up the program files on your computer.
5. At the final step, uncheck the **Run Inkscape** checkbox and click **Finish** to exit the install wizard.



What just happened?

In this section, we downloaded and installed Inkscape on Windows. Inkscape is an SVG editor. This will be useful to help us edit the images for our spot-the-difference exercise. And this is the topic of the next section.

Editing the images

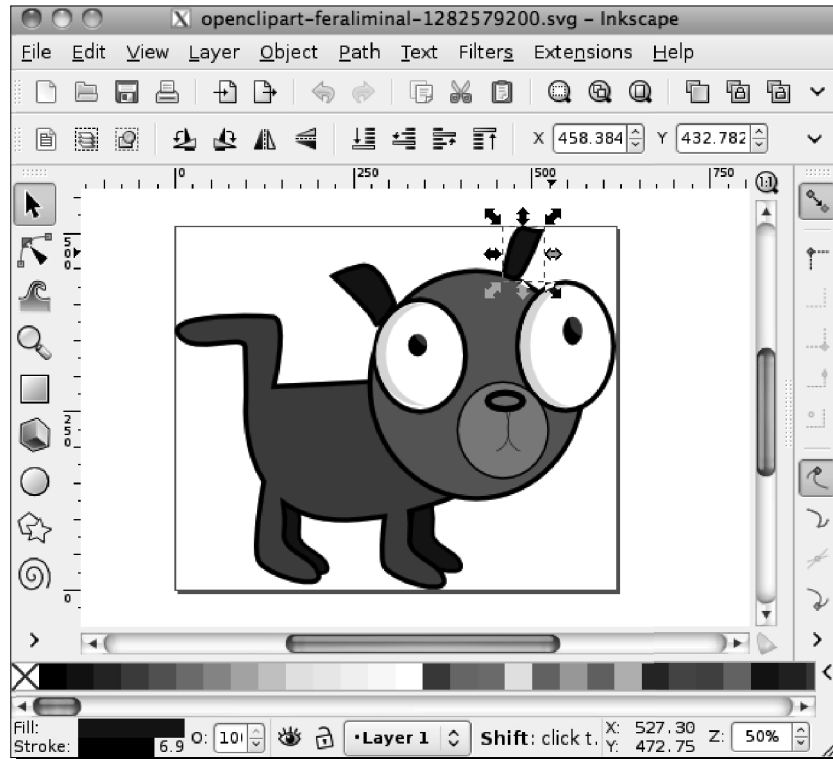
It's time to try our hand at editing the images for exercise. Let's dive in!

Find one of the SVG files on your hard drive—I will demonstrate Inkscape using the Dawg image that we downloaded previously. On Windows and Mac OS X, Inkscape will be associated with files with the `.svg` extension, so double-click on the file to launch the editor. You will be presented with a window such as the one shown in the next screenshot.

First, let's orientate ourselves:

- ◆ The name of the image is displayed at the very top.
- ◆ Below the title bar is a fairly standard menu containing items such as **File**, **Edit**, and **Help**. **File** contains familiar actions such as **New** (image), **Open** image, **Save** image, and **Quit**.
- ◆ In the middle of the window is our image.

- ◆ Around the image are a number of toolbars, including a palette below the image, and a set of tools to the left. The **Select and transform objects** tool is active initially. Click on an item in the image with your mouse, and a box and arrows will surround it. You can see that I have selected an ear in the following screenshot:



Do not worry if Inkscape seems daunting at first. The editor will become more familiar with a little use.

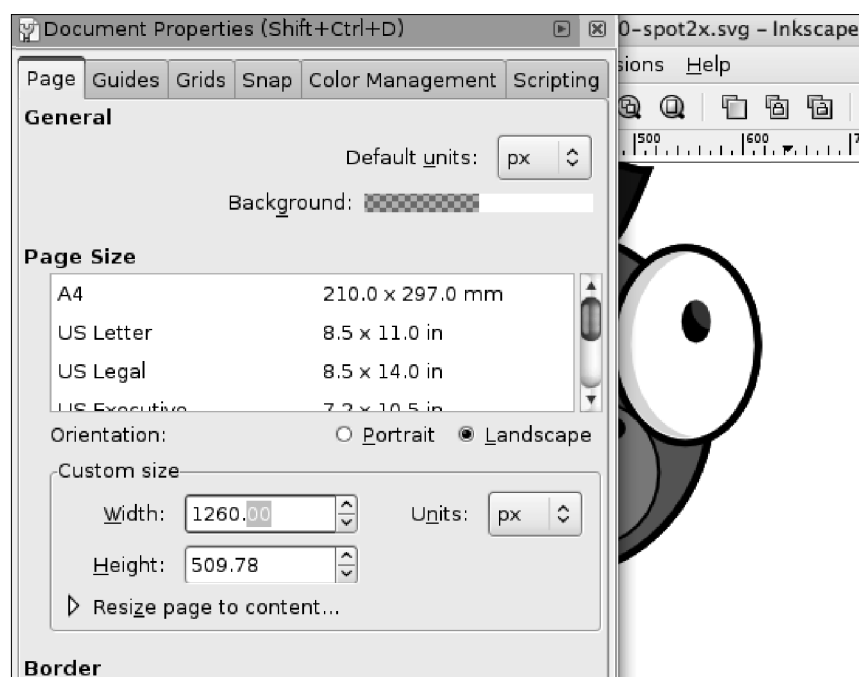
Time for action – editing the first SVG image

We will create our pair of spot-the-difference pictures side-by-side in the same image, which will reduce the number of images that we need to manage and allow us to keep track of the differences.

Follow these steps:

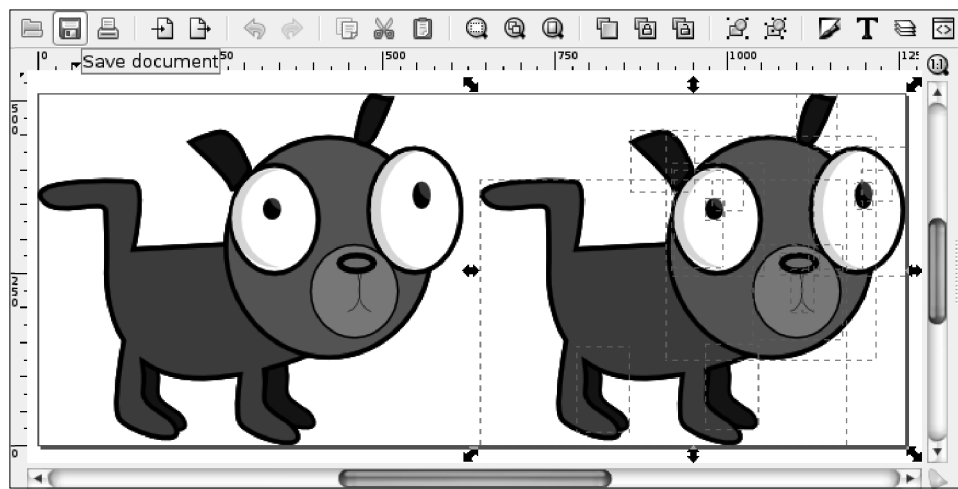
1. In the Inkscape editor menu bar choose **File | Save As** and add a suffix to the filename. I changed `openclipart-feraliminal-1282579200.svg` to `openclipart-feraliminal-1282579200-spot2x.svg`.

2. In the menu press **File | Document Properties...** and look in the resulting dialog window for the width. The original Dawg is 618.14 pixels wide, so double this number then add between 20 and 30 pixels. I ended up with a width of 1260 pixels. Press *Enter* so that the change takes effect, then close the dialog window. You will see that the shadowed box around the image has roughly doubled in width.



3. In the main Inkscape window press *Ctrl + A* to select all the layers in the image
 - Alternatively, use your mouse to drag a box over the image—make sure you select all as shown in the next screenshot.

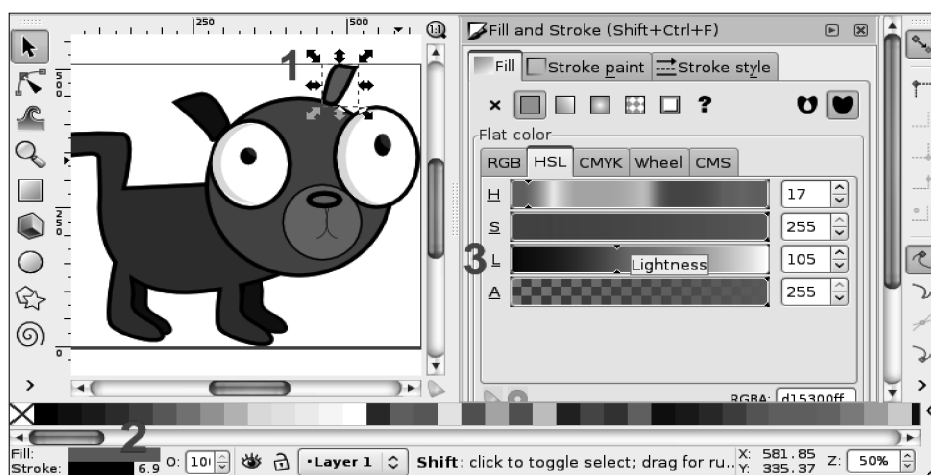
4. Press **Ctrl + D** on the keyboard or in the menu bar press **Edit | Duplicate** to replicate all layers. Then immediately use your right arrow key to start moving the duplicate to the right. If you get something wrong don't worry—just press the green **Undo last action** (left-arrow) button in the main tool bar.



Well done! This is a good opportunity to press the **Save** button. You may wish to zoom in, so in the menu bar press **View | Zoom | Zoom In**. We will continue, by editing the copy of Dawg on the right.

5. Select one of Dawg's ears with your mouse in the new image (point 1 in the next screenshot). Scroll down to the foot of the Inkscape window and double-click on the brown rectangle next to **Fill** (point 2).
6. The **Fill and Stroke** panel will appear on the right, as shown at point 3 in the next screenshot. There are three tabs at the top of this panel, **Fill**, **Stroke paint**, and **Stroke style**. **Fill** should be selected. Below the tabs, the **Flat color** button should be selected.

7. Beneath the buttons is a further row of tabs labeled **RGB**, **HSL**, **CMYK**, **wheel**, and **CMS**. These abbreviations denote different ways of visualizing colors and bear some explanation:
 - ❑ You may be familiar with **RGB** or **red-green-blue**.
 - ❑ The next tab, **HSL**, or **hue-saturation-luminance**, is useful, once you understand it. The hue slider allows you to set the tone or color on a continuous rainbow scale. The saturation slider controls the amount of color against the amount of gray in the fill. Luminance is the strength (or lightness) of the color and varies between black and white. Finally the **A** or **alpha** slider controls opacity and is common to all the tabs.
 - ❑ **CMYK** or **cyan-magenta-yellow-K** is the complementary color space to RGB.
8. In the **HSL** tab, move the **L** or luminance slider to the right to lighten the color.
9. Press the **Save** button at the top of the Inkscape window. And there we have our first difference!



We can go on to adjust the color of some other elements. We can also add and remove components. To remove a leg (poor Dawg), select it with your mouse and press the *Delete* or *Backspace* key. And, to duplicate an item, select it with your mouse, and press *Ctrl + D*. As before, the object will be pasted on top of the original. You may then move it using the arrow keys.

When you are editing your images, there are two questions to bear in mind:

- ◆ Can the pupil use one or at most two simple keywords to describe a difference between the pictures in an unambiguous way? Good keywords are things such as front leg, eyebrow, and curtain. Poor choices include left leg and the door lintel is different. The term left may create confusion—relative to whom? And lintel is a fairly advanced word, without an obvious replacement.
- ◆ If the pupil is asked to describe the differences from top to bottom, or possibly left to right, can they do so? This will be significant in formulating clear questions. So, ensure that objects that contain differences are clearly at different heights.



It is desirable to make the spot-the-difference reasonably accessible to any pupils who may be color blind. A useful rule is if we adjust the hue we also change the luminance or brightness of the color. This will ensure that the differences are perceivable to the maximum number of pupils. You can find out more about accessibility in the appendix.

Dawg is a fairly simple picture, and I made only three changes to this image. This makes it suitable for the first question page in our exercise.

When you are happy with the new image save the result and then:

1. From the Inkscape menu choose **File | Export Bitmap...**
2. In the resulting dialog window ensure that the **Drawing** button is selected, as we don't wish to export just a selection or the whole page. The **Bitmap size** will be set for you. The **Filename** including the destination folder will be the same as for the SVG original, except that the extension will be **.png**.
3. Press the **Export** button to create the cross-browser PNG image ready for uploading to Moodle.

What just happened?

We used Inkscape to create a copy of the original Dawg SVG image. We then explored how to select and edit components of the image. We tried editing colors and adding and removing components.

I went on to make between four and seven changes to the other three images. This will allow us to create spot-the-difference pages with a range of difficulties. The resulting exercise will provide a challenge for pupils with a range of abilities. You will end up with four SVG images and four exported PNG images. Each image file will contain a pair of pictures.

Bringing it together

We have the images for our spot the difference exercise, so it's time to return to the lesson we started creating. But first, we need to upload our images.

Time for action – adding images to our lesson

Follow this procedure in Moodle 1.9 and 2:

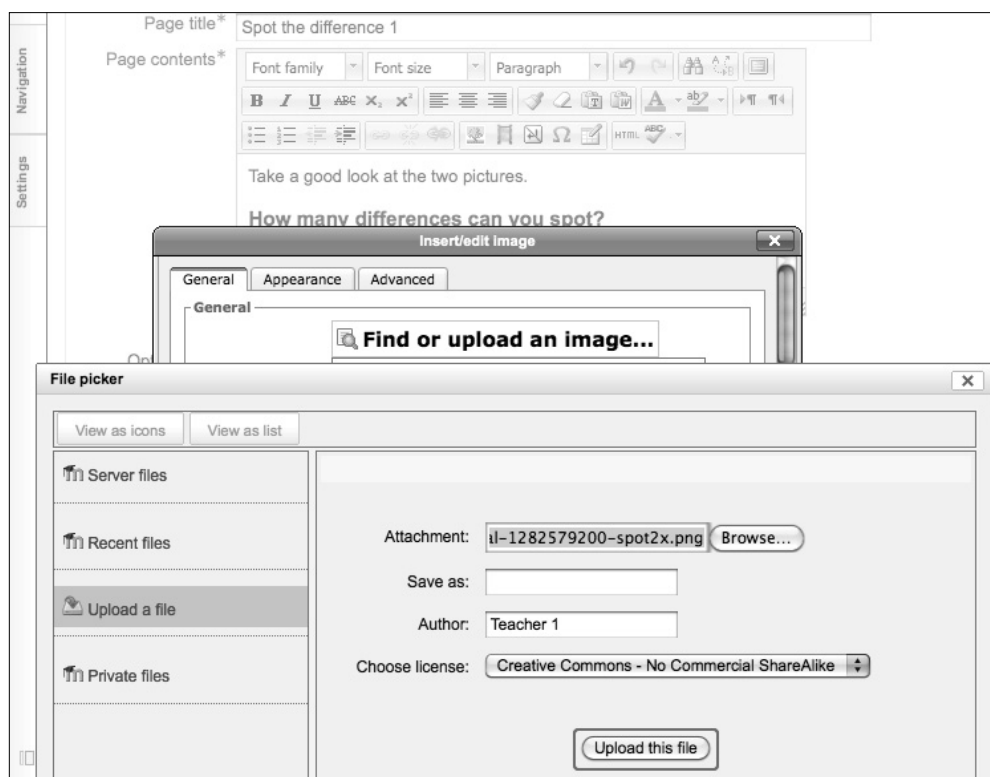
1. Go to the main page for the **MY104** course, and click on the link for the **Spot the difference** lesson.
2. You will be taken to the **Preview** tab, so choose the **Edit** tab and press the **update** icon next to the **Spot the difference 1** question.
3. Select the **Multiple choice** tab if it isn't already selected. And ensure that the **Multianswer** checkbox is ticked.
4. In the **Page contents** editor add a new line between the two existing sentences. Press the insert image icon as shown:



Continuing in Moodle 2:

5. In the **Insert/edit image** dialog press the **Find or upload an image...** button. Press the **Upload a file** button in the left menu of the **File picker** dialog.
6. Press the **Browse...** button, and find the Dawg PNG image on your computer. Returning to the **File picker** in your browser, choose a license if you wish. Press the **Upload this file** button, as shown in the next screenshot.

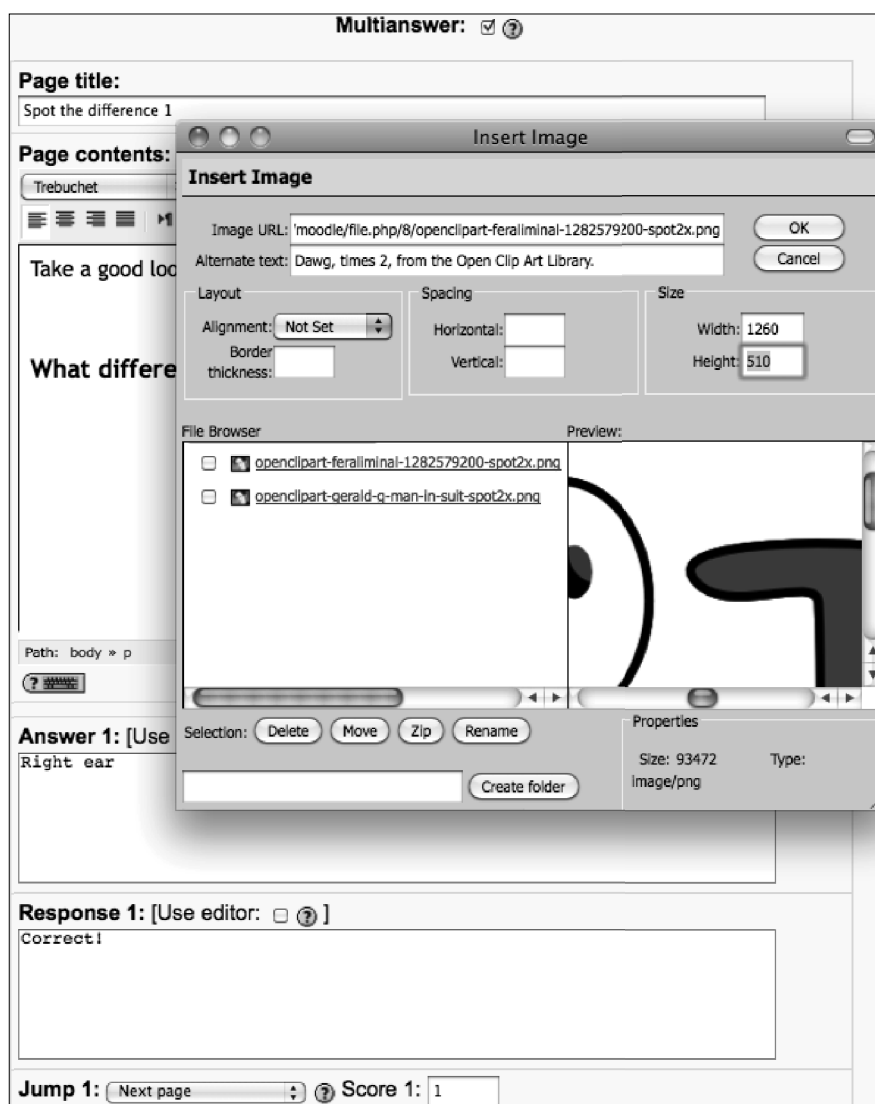
7. You will be returned to the **Insert image** dialog, where you should enter a suitable image description—I put **Dawg, times 2, from the Open Clip Art Library**. You may need to reduce the width and height, which you can do in the **Appearance** tab of the **Insert image** dialog. For Dawg, I halved the width from 1260 to 630 pixels and the height to 255 pixels. Press **OK** to insert the image.



These are the steps for Moodle 1.9:

8. Near the bottom of the **Insert image** dialog, press the **Browse...** button.
9. Press **Upload**, then fill in the **Alternate text** and edit the **Size** as described previously.
Continuing, we will set the answers for our question. These points apply to Moodle 1.9 and 2:
10. Scroll down the form, and enter the three correct answers—right ear, nose, and front leg.

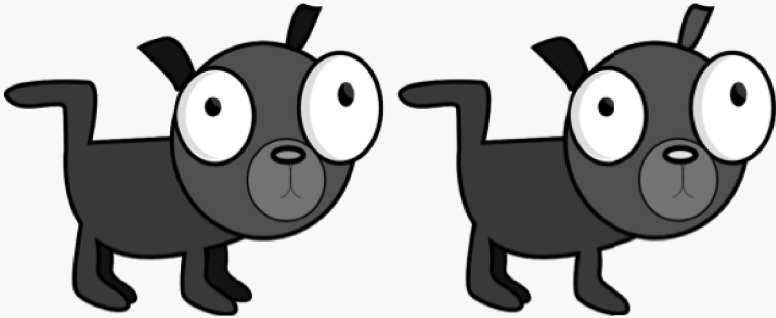
11. For each correct **Answer**, give a **Response**, for example **Well done**, a **Score** of 1 and for the present set the **Jump** drop-down menu to **Next page**.
12. Then enter some incorrect differences for the two final answers—I typed eye and tail. Set the **Response** to **Woops, no**, the **Score** to 0, and the **Jump** to **This page**. Note that the answers will be shuffled before they are presented to the pupil.
13. Scroll to the foot of the form and press the **Save page** button. You will be taken to a summary page. Press **Preview** to see the student's view. And give it a try.



What just happened?

We uploaded our spot-the-difference images in PNG format to the Moodle course. We then went to the question page in the lesson, and added the first image. We went on to add correct and incorrect answers, and started to configure the lesson flow.

Take a good look at the two pictures below.



What differences can you spot? Tick the boxes that apply

<input checked="" type="checkbox"/>	Eye
<input checked="" type="checkbox"/>	Nose
<input type="checkbox"/>	Right ear
<input type="checkbox"/>	Front leg
<input type="checkbox"/>	Tail

Please check one or more answers

More difficult exercises

We have a lesson containing a single question. To take our spot-the-difference exercise further we will want to try out different question types.

Time for action – adding more questions

In order to take our lesson activity further we will need two more questions. Return to the lesson's **Edit** tab, scroll to the foot of the page, and click on the link, **Add a question page here**. This will add the new question after our first one. Prepare the picture named **Man in Suit** for the second question. I created four differences, so this will still be a fairly easy exercise. We can use the same **Multiple choice** question type, with the **Multianswer** checkbox ticked.

After you have added the second question, again go to the **Edit** tab. Scroll to the foot of the page and click **Add a question here**. For the third question choose the **short answer** tab below the **question type** label. Then follow these steps in Moodle 1.9 and 2:

1. Type in a **Page title**, for example **Spot the difference 3 – house**.
2. In the **Page contents** editor, type the text **Take a good look at the pictures below**. Insert a line break.
3. In the editor, press the **Insert image** icon. Choose the image based on **Nicu's house**. Enter a suitable Description/Alternate text, and adjust the width and height using the original ratio. When you are happy, press **OK**.
4. Insert another line break. Enter the phrase, **Start from the bottom and work up. Can you describe the differences?** Now, select this text and use the drop-down menu in the editor to make it a **Heading level 3**.

A simple way to express the answer is using the wild card *. You may have come across wild cards in the Windows Explorer search. Try entering *knob* *curtain *window* *chimney* *cloud* in the field labeled **Answer 1**. This works, as it will match responses such as door knob, curtain missing, extra window, chimney pot, cloud. However, the pupil has to get the answer in precisely the correct order, bottom to top. And they are unlikely to achieve this. Can we improve matters?

In the previous steps, I deliberately didn't mention the **Use regular expression** checkbox. Regular expressions are like wildcards, but they are much more sophisticated. Follow these steps:

1. Tick the checkbox next to **Use regular expressions**. Leave the **Page title** and **Page contents** fields as they are.
2. In this situation the order of the answers matters, so scroll to **Answer 5**, and enter **.***. This is the **catch-all** for a correct answer. In regular expressions, dot **.** means match any character and the ***** means match any number of times. Next to **Response 5**, type **Correct. Well done!** Set **Jump 5 to Next page** and change **Score 5** to 0.

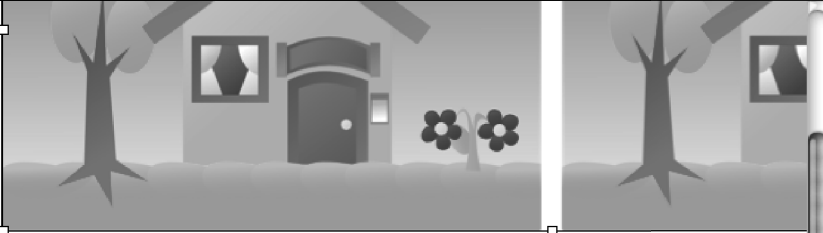
3. Go to **Answer 2** and type in `--.*curtain.* /i`. This looks complicated, yes? Let's break it down. `--` is a Moodle-specific extension of the regular expression syntax. It allows us to check for the presence of some desired text. As before, `.*` matches any character any number of times. And `/i` allows us to check for upper or lower-case characters. That is, it makes the regular expression case-insensitive. So the whole expression means, if the answer does not contain any characters followed by the word **curtain** followed by any characters, then the answer is incorrect. So this allows us to match words in any order. Neat, but complicated!
4. For **Response 2** enter a phrase such as **Something is missing. Try again.** Make sure that **Jump 2** is set to **This page** and **Score 2** is 0.
5. Repeat steps 3 and 4 for **Answer 3** (window) and **Answer 4** (chimney). Now we have a problem! I created five differences in the **Nicu's house** image. And for that we would need six answer fields—one for each keyword, and one catch-all. However, we only have five answer fields.
6. The workaround is to enter two keywords in **Answer 1**, which is why we left answer 1 to the end. Enter the text `--.*knob.*cloud.* /i`, which is similar to the previous regular expression. However, it requires **cloud** to be after (**door**) **knob**. (Order does not generally matter, apart from this exception—which is a little awkward but unavoidable.)
7. As we did previously, fill in **Response 1** with **Something is missing. Try again.** Set **Jump 1** to **This page** and **Score 1** to 0. Scroll to the bottom of the form and press **Save page**.

Now you will want to give our three questions a try. The third question may not work first time. If this is the case then go back and edit question 3, paying attention to the syntax of the regular expressions.

Spot the difference 3 - House

Page contents:

Trebuchet 1 (8 pt) Normal Lang B I U S x₂ x² [Icons]



Start from the bottom and work up. Can you describe the differences?

Path: body » p » img

Answer 1:

--.*knob.*cloud.* / i

Response 1: [Use editor: ☐ ?]
Something is missing. Try again.

Jump 1: This page [?] Score 1: 0

Answer 2:

--.*curtain.* / i

Response 2: [Use editor: ☐ ?]
Something is missing. Try again.

What just happened?

We added two more images and two questions to our spot-the-difference activity. One was a fairly simple image, for which we used the **multiple choice** question type. And the other was a more complicated image containing five differences. For this we used the **Short answer** question type, and we learned some new regular expression syntax. This was a bit tricky, so well done!

Wrapping up the lesson

Now that we have three questions in our lesson activity, spanning a range of difficulties, the final step is to add a branch table. As the flow diagram at the start of the chapter shows, this will allow the pupils to decide whether to try a difficult spot-the-difference exercise after they have tried a more straightforward one.

Time for action – adding a branch

To add a branch table, go back to the **Edit** tab for the lesson activity. Then you can follow these steps:

1. Scroll down to the row of links between the first and second spot-the-difference exercises.
2. Click on the link labeled **Add a branch table**.
3. Enter a **Page title**, for example, **Your choice**.
4. Enter some explanatory text under **Page contents**. You will probably want to mark up some of the text as a bulleted or unordered list. I selected the two lines shown in the next screenshot, and pressed the **Bulleted list** icon as shown here:



5. Enter a short phrase such as **Try an easier one** for the **Description 1** field. This will be used as a label for the button. Choose **Spot the difference 2 - suit** from the **Jump 1** drop-down menu.
6. And, enter a short phrase such as **Try a harder one** for the **Description 2** field. This will be used as a label for the button. Choose **spot the difference 3 - house** from the **Jump 2** drop-down menu.
7. Scroll to the bottom of the form and press the **Add a branch table button**.

Add a Branch Table ?

Page title:
Your choice

Page contents:

Trebuchet 1 (8 pt) Heading 3 Lang B I U S x₂ x² [Icons]

Well done for completing the first spot the difference exercise

- If you found the first exercise quite difficult, then choose button labelled "Try an easier one".
- If you found it quite easy, then choose the button labeled "Try a harder one".

Path: body » ul

☒ Arrange Branch buttons horizontally?
☒ Display in left menu?

Description 1:
Try an easier one

Jump 1: Spot the difference 2 – Suit ?

Description 1:
Try a ha

Jump 2: Spot the difference 3 – House ?

What just happened?

We added a branch table after the first question to give our pupils a choice. They will have the option to choose an easier or harder spot-the-difference exercise. And we used the editor to create a bullet list.

Enrolling students

When you launch an online course at your school, you will need to enroll students. There are various ways to achieve this, and we will discuss two possibilities. Which you use, if either, will depend on the age and maturity of your class, and what other systems your school uses. Although as a teacher, you can configure some enrolment for your courses yourself, you should probably discuss this with fellow teachers and your friendly IT support person.

- ◆ Enrolment with an **enrolment key** is suited to older pupils who can use e-mail and can be trusted to create and remember passwords
- ◆ Enrolment via **user upload** can be used for younger pupils, and smaller groups of pupils

We will walk through both methods.

Configuring an enrolment key

As a teacher, you can configure an enrolment key for your own courses. First, you should check with your friendly IT support person whether **Email-based self-registration** is enabled.

Time for action – creating and using an enrolment key

To configure an enrolment key for a course in Moodle 2:

1. In the **Settings** side-block, expand **Course administration | Users**, and click on the **Enrolment methods** link.
2. There will be a table containing three enrolment methods: **Manual enrolment**, **Guest access**, and **Self enrolment (Student)**. The latter two will initially be disabled, and thus grayed out. Click on the **Edit** (hand) icon for **Self enrolment**.
3. Moodle will take you to the **Self enrolment** form. Choose **Yes** for **Allow self enrolments**.



We wish to create an enrolment key, which is similar to a password. For security, you may want to use a password generator. You can search, for example on Google, for **online password generators**. I found a useful one at <http://maord.com/>. As you can see in the next screenshot, I generated and copied an eight-character key containing letters and numbers, which is fairly strong. Then I pasted it in the **Enrolment key** field. (Tick **Unmask** to check what you have copied.)

4. Leave **Use group enrolment keys** set to **No** and **Assign role** set to **Student**.

5. Tick the checkboxes next to **Start date** and **End date**. As you will be supervising enrolment in the classroom, set the **Start date** to when you first plan to use the course site, and the **End date** to one to three days later.
6. Leave the defaults for the next three options, including **Send course welcome**. Enter a **Custom welcome message**. I typed **Welcome class! This is to the spot the difference course, MY104**.
7. When you are happy, scroll to the foot of the page and press **Save changes**. You will see that **Self enrolment** has been enabled on the **Enrolment methods** page.

Enrolments

Enrolment Plugins

Default role

Course enrollable ☐ No ☒ Yes ☐ Date range

Start date ☐ Disable

End date ☐ Disable

Enrolment duration

Enrolment expiry notification

Notify

Notify students

Threshold

Groups

Group mode

Force

Availability

Availability

Enrolment key ☒ Unmask

Guest access

The location of the self-enrolment settings is slightly different in Moodle 1.9:

8. Go to the course's main page for the spot-the-difference course, **MY104**. In the course **Administration** side block, click on the **Settings** link.
9. Scroll down to the section of the settings form labeled **Enrolments**. Leave the **Site default** for the **Enrolment plugins** and **Default role** fields. Ensure that **Course enrollable** is set to **yes**.
10. Move down to the **Availability** section of the form. Ensure that **Availability** is set to **This course is available to students**.

- 11.** Set the enrolment **Start date**, **End date**, and the **Enrolment key** as detailed in the information box under the Moodle 2 instructions previously. Scroll to the end of the form and press **Save Changes**.

To use the enrolment key:

- 12.** In class, put the enrolment key on the whiteboard.
- 13.** The pupils should visit the Moodle homepage for your school; follow the links to **Login**, then to **Create new account**. After they have created a username and password, they should follow the link in the e-mail sent to them to confirm their account.
- 14.** Then the pupils can visit the homepage again, and click on the course link. It will have a key icon next to it.
- 15.** The pupils should type in the enrolment key when prompted. They will then be enrolled by the system.

What just happened?

We configured our course to use the built-in self-registration functionality. This entailed generating an enrolment key using an online service. Then we stepped through a procedure that your class can follow to create an account and enroll on the course.

Enrolling via user upload

You will need the assistance of your friendly IT support person or site administrator to upload user accounts, unless they give you extra permissions. We will create a text file using a basic text editor—Notepad on Windows, or TextEdit on Mac OS X.

Time for action – uploading users

To create the upload users text file, you can follow these steps:

- 1.** In Windows, go to **Start**, then find **Run**. Enter the program name, Notepad and press the **OK** button. A simple text editor will appear.
- 2.** Enter the field names on one line as shown—`username, password` and so on, with commas between each name. Press *Enter* to insert a new line.
- 3.** On the new line, start to enter the details for a pupil. You will need to decide on the convention for the username. You can choose either a pseudo-random password, or a weaker but easier to remember combination of a dictionary word and a number—think carefully about this.

4. You can use a unique e-mail address for each user, if one is available. Or, some e-mail systems (for example, a Google Mail free account and a Yahoo paid account at the time of writing) allow you to add a tag before the @ symbol. And this could be set to the username, as shown below. This will satisfy Moodle's requirement for a unique e-mail address per user.
5. You finish the line with the `maildisplay` flag set to 0 and the `shortname` for your course, `MY104`.
6. Repeat the previous three steps for each pupil, ensuring that the username, password, and e-mail address are unique.
7. Save the file on your computer with the extension `.csv`, for comma separated values.

```
username, password, firstname, lastname, email, maildisplay,
course1
tom, rc84hd, Tom, Jones, teacher.name+tom@my.school, 0, MY104
susan, orange32, Susan, Smith, teacher.name+susan@my.school, 0,
MY104
donald, apple21, Donald, Duck, teacher.name+donald@my.school, 0,
MY104
```

Hand the file over to your friendly IT support person and ask them to upload it to Moodle:

8. In the **Site administration** block, they should expand **Users | Authentication** and click on **Upload users**.
9. The page will allow them to upload the CSV file, and preview the results. They should click on the **Upload users** button.

What just happened?

We created a CSV text file containing user accounts and enrolment details for our pupils. And we handed the file over to the IT support person. Assuming that there were no problems, your pupils will have been added to the Moodle site if they don't already exist. And they will be enrolled on your course.

Pop quiz

Here are some quick questions to help test your understanding of the chapter. There may be more than one correct answer. Good luck!

1. What are the benefit(s) of branch tables in the lesson module?
 - a. They allow students' paths through a lesson to diverge from a point.
 - b. They allow students' paths to converge to a point.
 - c. They present choices to the student.
2. In the regular expression syntax available in the short answer question type, what does `.*` mean?
 - a. Match a dot at least one time.
 - b. Match any character any number of times.
 - c. Match any character at least one time.
3. Which property of Scalable Vector Graphics (SVG) allows them to scale without losing detail or becoming pixelated?
 - a. That SVG is an open standard developed through the World Wide Web Consortium.
 - b. That in SVG an object is specified in terms of its attributes, like dimensions and position, instead of storing the color of areas or pixels within the image.
 - c. That SVG is based on the Extensible Markup Language (XML), which makes it more interoperable.
4. What is the purpose of an enrolment key?
 - a. They allow all the pupils in a class to share a common password.
 - b. They allow the teacher to log in on behalf of a student.
 - c. They allow a teacher to restrict entry to a course.

Have a go hero

In this chapter we used the *lesson* activity module to create spot-the-difference exercises. Look back over the previous chapters, and think about which activities could be re-developed in the lesson module, and how.

>> Suggested answer: the alphabet quiz we created in the first chapter could make use of the lesson activity. (The maths quiz as developed by the end of Chapter 2 uses a third-party question type, which is not available in the lesson module.)

Summary

The spot-the-difference exercises that we have created will be beneficial to your class in a number of ways:

- ◆ As visually appealing exercises they will appeal to younger students
- ◆ Students will have the opportunity to develop their visual and observational skills
- ◆ They will develop their descriptive and decision making skills

We learned a lot in this chapter about creating lesson modules. Specifically, we covered:

- ◆ Representing and planning a lesson activity as a flow diagram
- ◆ Sourcing editable, reusable vector graphics on the Open Clip Art Library website
- ◆ Installing Inkscape, a free, cross-platform Scalable Vector Graphics editor
- ◆ Using Inkscape to edit our spot-the-difference images
- ◆ Adding question pages and branch tables to our lesson
- ◆ Using multiple choice and short answer question types
- ◆ Enrolling pupils

We also discussed the powerful regular expression syntax available in short answer questions.

Now that we've learned about lessons and created a visual exercise, we're ready to look at alternative visualizations for historic and temporal information—which is the topic of the next chapter.

Where to buy this book

You can buy Moodle 2 for Teaching 4-9 Year Olds *Beginner's Guide* from the Packt Publishing website: <http://www.packtpub.com/moodle-2-for-teaching-4-9-year-olds-beginners-guide/book>.

Free shipping to the US, UK, Europe and selected Asian countries. For more information, please read our [shipping policy](#).

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